

Cichlid Research
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GSURC Abstract

Hormone Response to Isolation vs Dynamic Social Environments in Convict Cichlids

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Previous research on convict cichlids revealed that the removal of pair-bonded convicts from a dynamic tank environment to an isolated tank is negatively correlated with the expression of social behaviors. Convicts show more social behaviors (aggression, affiliation) when in a dynamic tank as compared to an isolated tank. In this experiment, we will sample hormones from male and female pairs of monogamous convict cichlids kept in dynamic group environments alongside conspecifics, then transferred to isolated environment free of conspecifics. We will examine the effect of social environment on the levels of two hormones; 11-Ketotestosterone (11-KT) the most potent fish androgen, commonly associated with aggression, and cortisol, the hormone released in response to stress.

Pairs will be identified and observed in the dynamic environment first with ten-minute observations and recording of total behavior. Hormones will be collected after observations in the dynamic environment. The same pairs will be transferred to individual ten-gallon aquariums and acclimated over a set course of time. After acclimation, the behaviors will be recorded, and hormone samples were taken. We expect to see elevated levels of 11-KT in the dynamic environment, but reduced levels of cortisol. Elevated levels of aggression are necessary to provide proper territory and nest defense. The fish will be as close to a natural environment in the dynamic tanks with conspecifics. We expect to see lower levels of 11-KT in the isolated tanks free of conspecifics, but higher levels of cortisol in the isolated tanks due to the lack of natural stimulus.